

REMARKS

This responds to the Office Action mailed on May 29, 2007.

Claims 1, 5, 7, 9, 11-13, 17 and 31 are amended, claims 29-30 are canceled, and no claims are added; as a result, claims 1-2, 4-18 and 31 are now pending in this application.

Claim Amendments

Claims 1, 5, 7, 9, 11-13, 17 and 31 are amended for clarification. Support for the amendments is found in the specification and figures. Examples of such support can be found at paragraphs [008], [009], [0023] and [0025].

§103 Rejection of the Claims

Claims 1-2, 5-7 and 29-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Okaniwa et al. (JP 2003-082012) in view of Singleton et al. (US 5425865).

Applicant respectfully submits that the Examiner did not make out a *prima facie* case of obviousness for the following reasons:

- (1) even if combined, the cited references fail to teach or suggest all of the elements of Applicant's claimed invention;
- (2) there is no suggestion to combine Okaniwa with Singleton.

Claimed Features Lacking in Combination.

The references when combined must teach or suggest all the claim elements. M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claim 1 recites: “an electrolyte in contact with the first and second electrodes and the one or more catalysts, the electrolyte comprising: a protonic polymer having a polymeric backbone with side chains containing acidic groups for conducting protons in an electrochemical cell, a first vinyl monomer comprising a –COOH- group or phosphoric acid, and a cross linking agent comprising a second vinyl monomer; wherein the electrolyte is in intimate contact with the one or more catalysts and wherein the electrolyte is configured to fill a desired or arbitrary space within the electrochemical cell.” (*from Applicant's claim 1.*)

Applicant's independent claims 1 and 31 have been amended to further clarify the elements of the electrochemical cell of the present invention. The electrolyte of claims 1 and 31 is not only a high performing electrolyte for use in electrochemical cells, but is specifically chosen to allow for unique electrochemical cell configurations. The electrolyte is capable of filling an available space (as a liquid) in the cell and forming strong physical or mechanical bonds (intimate contact) with catalysts (by curing *in situ*). Because of the electrolyte's characteristics, an electrochemical cell of unconventional size and shape can be manufactured and utilized with comparable or superior performance to traditional cell configurations.

In contrast, Okaniwa describes a polyelectrolyte used in fuel cells or batteries that does not have the flexibility or characteristics of the electrolyte of the present invention. The polyelectrolyte of Okaniwa is built on aromatic monomers and is not curable *in situ* or capable of filling non-traditional spaces or configurations. Further, the Okaniwa reference does not disclose an electrolyte that is in intimate contact with electrochemical cell catalysts. The reference, as explained by the Examiner, does not disclose a first vinyl monomer comprising a –COOH group or phosphoric acid. Nor does it disclose a cross linking agent comprising a second vinyl monomer.

Even when combined with Singleton, the references fail to disclose every element. Singleton discloses a second polymeric material cross linked with a first porous polymeric support, to form a microporous web. The Singleton reference describes forming a solid polymeric matrix onto which a second polymer is reacted. The references combined do not disclose an electrolyte of the structure described in which strong physical or mechanical bonds are formed with one or more catalysts and an electrolyte that is configured to fill desired, non-traditional, spaces in an electrochemical cell.

No Suggestion to Combine.

Even if the Examiner shows that all elements are present between the Okinawa reference and the Singleton reference, there is no suggestion or motivation to combine the elements. Neither reference describes a motivation for developing an electrolyte for increasing the strength of bond or contact with an electrolyte and catalyst. Nor do the references provide any insight on

overcoming obstacles to developing electrochemical cells with smaller and more unique configurations, such as by utilizing the electrolyte of the present invention to fill limited or non-traditional spaces within a cell.

As all rejections are based on the Okinawa and Singleton references, Applicant respectfully requests that the rejections be withdrawn. As all claims depend directly or indirectly from Claim 1, or Claim 31- which has a similar scope as Claim 1, it is believed that the claims are in allowable condition.

CONCLUSION

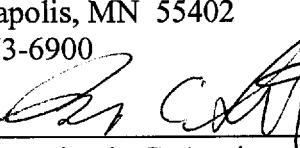
Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney 612-373-6920 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date

8/29/07

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop RCE, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 29 day of August 2007.

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